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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,433	08/28/2003	Takayuki Tani	14225-020001 / F1030443US	7251
26211	7590	08/25/2004	EXAMINER	
FISH & RICHARDSON P.C. 45 ROCKEFELLER PLAZA, SUITE 2800 NEW YORK, NY 10111			WILLIAMS, ALEXANDER O	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/650,433

Applicant(s)

TANI ET AL

Examiner

Alexander O Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Serial Number: 10/650433 Attorney's Docket #: 14225-020001/F1030443US00
Filing Date: 8/28/2003; claimed foreign priority to 8/28/2002

Applicant: Tani et al.

Examiner: Alexander Williams

Applicant's Amendment filed 6/14/04 has been acknowledged.

Applicant's drawing replacements filed 6/14/04 has been acknowledged.

Note: In claim 11, line 3, "patter'" should probably be --pattern--.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 to 4, 6 to 8 and 10 to 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hyodo Haruo et al. (Japan Patent # 11-307673).

In claim 1, (Japan Patent # 11-307673) (figures 1 to 7B) specifically figures 5(A) and 5(B) show a semiconductor device **25**, comprising: a first substrate **11a** formed of an insulating material having at least one through hole **18**; a semiconductor element **12** secured to a desired position of a conductive pattern **13,14** formed on a first main surface of the first substrate; a plurality of electrodes **16,15,27,19,20**, for external connection on a second main surface of the first substrate located opposite to the first main surface of the first substrate that is electrically connected to said desired conductive pattern via the thorough hole; a resin mold **24**, formed so as to cover, at least, the main surfaces of the first substrate, wherein the semiconductor device is characterized in that a second substrate **11b** formed of an insulating material having approximately the same coefficient of linear expansion as the first substrate is adhered to the second main surface of said first substrate so that, at least, the electrode are exposed.

2. In claim 2, the semiconductor device according to claim 1, Hyodo Haruo et al. characterized in that the second substrate is adhered to the first substrate so that, at least, the sides of the electrodes located in the vicinity of outer sides of the second main surface of the first substrate are exposed from the outer sides.

3. The semiconductor device according to Claim 1, Hyodo Haruo et al. is characterized in that said the second substrate separates the electrodes from each other so that the electrodes exist independently in separate regions.

4. The semiconductor device according to Claim 2, Hyodo Haruo et al. characterized in that the second substrate **11b** is thicker than the electrodes **15,16** for external connection.

6. The semiconductor device according to Claim 2, Hyodo Haruo et al. is characterized in that the first and second substrates are ceramic substrates.

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7. The semiconductor device according to Claim 2, Hyodo Haruo et al. is characterized in that the second substrate separates the electrodes from each other so that the electrodes exist independently in separate regions.

8. The semiconductor device according to Claim 3, Hyodo Haruo et al. is characterized in that the second substrate is thicker than the electrodes.

10. The semiconductor device according to Claim 3, Hyodo Haruo et al. is characterized in that the first and second substrates are ceramic substrates.

11. The semiconductor device according to claim 1, Hyodo Haruo et al. comprises a metal wire 23 to electrically connect an electrode pad of the semiconductor element to the desired conductive pattern.

12. Hyodo Haruo et al. (Japan Patent # 11-307673) (figures 1 to 7B) specifically figures 5(A) and 5(B) show a method for forming a semiconductor device 25, comprising: adhering a second substrate 11b to a second surface of a first substrate 11a; subsequently mounting a semiconductor element 12 on a first surface of the first substrate; and electrically coupling the semiconductor element to one or more electrodes 16,15,2719,20 on the second surface of the first substrate, wherein the electrodes are exposed.

13. The method of claim 12, Hyodo Haruo et al. show wherein a thickness of the second substrate 11b is greater than a thickness of the electrode 15,16.

14. The method of claim 12, Hyodo Haruo et al. show wherein a coefficient of expansion of the first substrate and a coefficient of expansion of the second substrate are substantially equal.

Claims 5 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hyodo Haruo et al. (Japan Patent # 11-307673) in view of Ohmori et al. (U.S. Patent # 6,022,763).

Hyodo Haruo et al. show the features of the claimed invention as detailed above, but fail to explicitly show the that the electrodes are plated with gold.

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Ohmori et al. is cited for showing a substrate for a semiconductor device. Specifically Ohmori et al. (figures 1 to 9) specifically figure 5 discloses that the electrodes are plated with gold for the purpose of obtaining high yield. 5 and 9. The semiconductor device according to Claims 2 or 3, the combination with Ohmori et al.s' electrodes are plated with gold.

Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention to use Ohmori et al.'s gold electrodes to modify Hyodo Haruo et al.'s substrate for the purpose of obtaining high yield.

Response

Applicant's arguments filed 6/14/95 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/712,700- 703,758,713,717,720,675,676,684,796,784,786,668,730	3/21/04 8/24/04
Other Documentation: foreign patents and literature in 257/712,700- 703,758,713,717,720,675,676,684,796,784,786,668,730	3/21/04 8/24/04
Electronic data base(s): U.S. Patents EAST	3/21/04 8/24/04

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AOW
8/24/04

A handwritten signature in black ink, appearing to read 'Alexander Williams', with a stylized flourish at the end.

Alexander Williams
Primary Examiner